

The Middle Class Consensus and Economic Development

William Easterly

A higher share of income for the middle class and lower ethnic polarization are empirically associated with higher income, higher growth, more education, better health, better infrastructure, better economic policies, less political instability, less civil war (putting ethnic minorities at risk), more social "modernization," and more democracy



Summary findings

Modern political economy stresses “society’s polarization” as a determinant of development outcomes. Among the most common forms of social conflict are class polarization and ethnic polarization.

A middle class consensus is defined as a high share of income for the middle class and a low degree of ethnic polarization. A middle class consensus distinguishes development successes from failures.

A theoretical model shows how groups— distinguished by class or ethnicity — will under-invest in human capital and infrastructure when there is “leakage” to another group.

Easterly links the existence of a middle class consensus to exogenous country characteristics such as resource

endowments, along the lines of the provocative thesis of Engerman and Sokoloff 1997 that tropical commodity exporters are more unequal than other societies.

Easterly confirms this hypothesis with cross-country data. This makes it possible to use resource endowments as instruments for inequality.

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World Bank

“Thus it is manifest that the best political community is formed by citizens of the middle class, and that those states are likely to be well-administered, in which the middle class is large .. where the middle class is large, there are least likely to be factions and dissension.”

Aristotle 306 BC (quoted in Decornez 1998)

“So strong is this propensity of mankind to fall into mutual animosities, that where no substantial occasion presents itself, the most frivolous and fanciful distinctions have been sufficient to kindle their unfriendly passions and excite their most violent conflicts. But the most common and durable source of factions has been the various and unequal distribution of property.”

(James Madison 1787, Federalist Papers No. 10)

“Many of the world's problems stem from the fact that it has 5,000 ethnic groups but only 190 countries.”²

(Rodger Doyle, Scientific American, September 1998)

I. Introduction

Many explanations of the cross-country differences in economic growth and development only lead to further questions. If differences in saving rates explain cross-country income differences (Mankiw, Romer, and Weil 1992), then why do some societies save more than others? If national policies explain much of the differences in growth rates across countries (Barro and Sala-I-Martin 1995, Easterly and Levine 1997), then why do some nations have worse government policies than others? The dissatisfaction with explanations of cross-country development differences by endogenous variables has led to a recent search in the literature for more fundamental characteristics of nations that determine development outcomes.

Political economy explanations of development outcomes usually focus on “society’s polarization and degree of social conflict” (Alesina 1994, p. 38). Casual observation suggests that among the most common polarizing forces are differences between classes and differences between ethnic groups. This paper puts forward the existence of a middle class consensus as a critical determinant of development differences. A middle class consensus is defined as a national situation where there are neither strong class differences nor ethnic differences. The paper links the existence of a middle class consensus to exogenous country characteristics like resource endowments and ethnolinguistic diversity. Two recent strands of the literature motivate this paper: first, the literature on resource endowments, inequality, and growth, and second, the literature on ethnic diversity and growth.

The first strand of the literature relevant to this paper is captured well by a paper by Engerman and Sokoloff 1997. Engerman and Sokoloff link tropical commodity factor endowments in Latin American countries to high inequality and parasitic elites, which in turn led to low growth and low levels of public goods like mass education. In contrast, the non-tropical land in North America lent itself to family farms, which implied greater equality and greater investment in public goods.³

Sachs and Warner 1997 also find that tropical location and commodity exporting are adverse for economic growth. Hall and Jones 1999 found that tropical location was a factor determining “social infrastructure,” which measures quality of institutions and openness to trade. Neither of these sets of authors links tropical location to inequality, however, arguably a more fundamental characteristic of a society than institutions or commodity exporting.

Economic historians have pointed out the importance of a middle class for economic development. Landes 1998 says the “ideal growth and development society” would have “a relatively large middle class” (pp. 217-18). He cites “the great English middle class” as a reason for England’s being first at industrialization (p. 221).

Adelman and Morris 1967 noted that “in the economic development of Western Europe, the middle classes were a driving force”. Moreover, they presciently said that “it is clear from many country studies that the growth of a robust middle class remains of crucial importance in contemporary low-income nations.”⁴

The opposite of a middle class society is an unequal one where landowners lord it over (sometimes ethnically distinct) peasants. A classic example is the white landowners oppressing the landless African-Americans in the American South during the “Jim Crow” period from roughly 1867 to 1964 (and of course whites enslaving blacks in the prior two and a half centuries – the ultimate form of inequality).

To take a more modern example, Sen 1999 notes that in backward parts of India (such as Bihar state), upper-caste landowners “are terrorizing -- through selective murder and rape – the

families of laborers 'tied' to their lands" (p. 113). This continues a long debate (initiated at least as early as Bhaduri 1973) about whether agriculture in India (or part of India) is "semi-feudal."⁵ Thorner 1982 also notes that "master-servant" relations in India "have by no means disappeared", although she disagrees that Indian agriculture is "semi-feudal." Many authors point out that perpetual peasant debt to landowners in India creates a form of "bonded labor" (see Bales 1999 for a popular treatment), although the Indian government is trying to eliminate this.

Another extreme example of "semi-feudal" lord and peasant relations is the Mexican state of Chiapas, where the Zapatista rebellion that broke out on January 1, 1994 was only the latest installment in a long-running conflict between (generally white) landowners and (generally Indian) peasants. Chiapas governor Absalón Castellanos Domínguez noted in 1982 that "we have no middle class; there are the rich, who are very rich, and the poor, who are very poor." This statement was all the more poignant since Castellanos himself belonged to an old and wealthy landowning family and, as a military man, was involved in an army massacre of Indians in 1980.⁶ Many observers have noted the "sordid association" among landowners and their *pistoleros*, party bosses, the army, and the police, all of whom agree on the use of force to repress peasant rights (for example, depriving peasants of land to which they are legally entitled). Amnesty International noted "a pattern of apparently deliberate political killings" of supporters and leaders of independent peasant organizations. At one point, four successive leaders of the peasant organization *Casa del Pueblo* were assassinated.⁷

These may be extreme examples. However, one recent survey of "social dominance" notes the "ubiquitousness and stability of group-based social hierarchy" (Sidanius and Pratto 1999).

A number of empirical cross-country studies find high inequality linked to poor growth outcomes (Alesina and Rodrik 1994, Persson and Tabellini 1994, Clarke 1995, Perotti 1996, Birdsall, Ross, and Sabot 1994, Birdsall and Londoño 1998, Deininger and Squire 1998, the latter two using land inequality).⁸ Perotti 1996 links the effect of inequality on growth to the effect

through human capital and through political instability. Alesina, Baqir, and Easterly 1999b find that high inequality is associated with higher government employment, which they interpret as an inefficient and disguised redistributive device.

A large theoretical literature also links inequality to low growth and low human capital accumulation. Galor and Zeira 1993 postulate that the poor are liquidity-constrained from accumulating human capital; higher inequality implies a greater share of the population will be liquidity constrained and thus the society accumulates less human capital. Alesina and Rodrik 1994 and Persson and Tabellini 1994 link high inequality to low growth through the poor majority imposing a tax on the rich.

The importance of the middle class in determining societal prosperity takes on increased urgency in light of academic and popular stories of the disappearing middle class in the US over the last few decades (Decornez 1998, Kreml 1997, Harrison and Bluestone 1988). This is a reversal of what has long been saluted as the special American tradition of equality of opportunity. In the famous opening words of De Toqueville's *Democracy in America*: "Amongst the novel objects that attracted my attention during my stay in the United States, nothing struck me more forcibly than the general equality of conditions." ⁹

The output collapse in Eastern Europe and the former Soviet Union has been linked to destruction of the old middle class before a new middle class could be established. Milanovic 1999 describes the "hollowing out" of the old state-sector middle class. A conference on the woes of the ex-Communist economies was entitled "The Middle Class as a Precondition for a Sustainable Society" (Wallace and Haerpfer 1998, Tilkidjiev 1998).

The second strand of the literature links ethnic polarization to poor growth and public good outcomes. While violence directed at or by ethnic groups is well-known, the more subtle economic effects of ethnic conflict have only recently attracted attention in the economics literature. Easterly and Levine 1997 find that Africa's high linguistic diversity helps explain the continent's poor policies, including low public goods, and poor economic growth. Alesina, Baqir,

and Easterly 1999a find that more ethnically diverse US cities and counties devote less resources to public goods than more ethnically homogeneous cities and counties. Goldin and Katz 1999 find lower public support for higher education in states with more religious - ethnic heterogeneity. Goldin and Katz 1997 likewise find lower high school graduation rates in states that had higher religious-ethnic diversity. Miguel 1999 likewise finds lower primary school funding in more ethnically diverse districts in Kenya. Mauro 1995 and La Porta, Lopez de Silanes, Shleifer and Vishny 1998 find that ethnic diversity predicts poor quality of government services. Alesina, Baqir, and Easterly 1999b find a link from ethnic diversity to bloated government payrolls in US cities. Rodrik 1999 noted that ethnically polarized nations react more adversely to external terms of trade shocks. Svensson 1998 finds that more foreign aid proceeds are diverted into corruption in more ethnically diverse places. Mauro 1995 and Annett 1999 finds that linguistic or religious diversity leads to greater political instability, which Annett finds in turn leads to higher government consumption.. Knack and Keefer 1997 find that ethnic homogeneity raises “social capital” or “trust,” which in turn is associated with faster growth and higher output per worker. Adelman and Morris 1967 also noted that “cultural and ethnic heterogeneity tend to hamper the early stages of nation-building and growth.”¹⁰

As discussed in Easterly and Levine 1997, there is a large political science literature that describes the formation of ethnically based political blocs. Rothchild (1991), one of the leading scholars of ethnic politics, avers that “ethnic and other rivalries” over “distributive goods” are “far-reaching”(p. 195).¹¹ For example, in Zambia, Scarritt (1993) describes how the Nyanja group (15 percent of the population) was in power through 1991 under the undemocratic rule of Kenneth Kaunda. The Bemba group (37 percent of the population) had been discriminated against under Kaunda because he feared they were opposition sympathizers. Food riots against the first IMF agreements in the late 80s took place primarily among the Bemba population. In democratic elections that were finally held in 1991, the Bemba group led the winning coalition, while the party supported by the Nyanja lost.

In Nigeria, likewise, the predominant (albeit far from the only) ethnic split has been between the Muslim North and the Christian South. Collier [1995] states flatly: “the Nigerian government is a Northern interest group. This group has never relinquished power since independence.” Ake [1996] concludes that most of Nigeria’s elites “place their Nigerian identity below that of their local community, nation, or ethnic group” [p. 67]. Although Nigeria is a constitutional federation, the states rely on handouts of oil money from the central government. Oil is actually produced in the South. The competition for rents from oil often seems to divert resources away from human capital accumulation (as predicted by Tornell and Lane 1999). For example, public spending in Nigeria during the oil boom in the early 1990s increased by more than 50 percent, yet over the same period school enrollment shrunk due to tight education funding. The Nigerian dissident writer Wole Soyinka (1996) notes that a government-appointed commission of inquiry was unable to account for what happened to much of the 1990s government oil windfall.

Ethnic groups may act selfishly in their own interest, because they may receive only spillovers from the human capital or knowledge of those in their own ethnic group (what Borjas 1992, 1995, 1999 has called “ethnic capital”). Case and Katz 1991 found there were strong neighborhood effects on economic and social outcomes for Boston inner city youths. Benabou 1993 and Durlauf 1996 suggest that inequality persists through neighborhood externalities, local school finance, and endogenous segregation between rich and poor. Casella and Rauch 1997 argue that exporters with an ethnic connection to business groups inside the importing country have an advantage over those without such ties. Alesina and La Ferrara 1999 find that both higher community income inequality and higher ethnic heterogeneity makes participation in social clubs less likely in the US, which is consistent with the idea that there is not much association across groups. The existence of “ethnic capital” makes for persistent income differentials between ethnic groups, which may exacerbate ethnic tensions. In Mexico, for example, the poverty rate among indigenous people is 81 percent, while it is only 18 percent among non-indigenous Mexicans.¹²

This paper brings together these two strands of the literature. I call a situation of relative equality and ethnic homogeneity a “middle class consensus.” I argue that this middle class consensus facilitates higher levels of income and growth, as well as higher levels of public goods. Like Engerman and Sokoloff 1997, I link the existence of a middle class consensus to initial factor endowments, mainly a tropical endowment that lent itself to production of primary commodities, but I test their hypothesis with cross-country data. I find that a middle class consensus provides a remarkably parsimonious explanation of development outcomes.

The paper first develops a simple theoretical model in which a middle class consensus predicts higher levels of income, growth, and public goods. Then I empirically test the predictions that higher ethnic diversity and higher inequality lead to lower income, growth, and public goods. I also test some auxiliary hypotheses about economic policies, political instability, democracy, and “modernization.”

II. A theoretical model of middle class consensus, human capital, and growth

This section applies a very simple theoretical model to the question of the effect of ethnic polarization and income inequality on growth and public goods.

A. Basic Model

I assume for simplicity that there are two distinct ethnic groups in a society. The ethnic distinction between the groups is important because I assume that a member of a given group receives spillovers from the average level of human capital in his or her own group. Borjas (1992, 1995, 1999) found empirical evidence for this within-group spillover, and referred to the average level of human capital of an ethnic group as “ethnic capital.” This within-group spillover could come about because people are more likely to associate with members of their own group rather than with members of a different group. This occurs in part because there is high neighborhood segregation by class and by ethnic group. For example, if we sort US zip codes in 1990 by percent black, 50 percent of blacks are living in zip codes that contain only 3 percent of the white population. Cutler, Glaeser, and Vigdor 1999 estimate using census tract data that the average

black in 1990 lived in a neighborhood that was 56 percent black, which was a decline from 1970 when it was 68 percent black.

Since consumers are maximizing over an infinite horizon, the within-group spillover also reflects the probability that one's descendants will belong to one's own group, assuming low intermarriage between groups.¹³ In the US, black-white marriages account for only 7 percent of all black marriages in 1992. If marriage were random, blacks would marry whites 83 percent of the time – i.e. the share of whites in the population.¹⁴

So the income of a member of group 1 is given by a production function in which enters his or her own human capital (h_i) and the average of human capital in his or her group \bar{h}_i . Human capital will be defined very broadly to include education, health, infrastructure, knowledge, etc. The groups are assumed to face the same productivity parameter A and the same degree of spillover $1-\alpha$:

$$(1) y_1 = Ah_1^\alpha \bar{h}_1^{1-\alpha}$$

$$(2) y_2 = Ah_2^\alpha \bar{h}_2^{1-\alpha}$$

The first group is assumed to be in the majority, so if n_1 is the share of group 1 in the population then $n_1 > .5$. The individuals within each group are assumed to have identical amounts of human capital. I define the share of income of group 1 as θ_1 where

$$(3) \theta_1 = \frac{n_1 y_1}{n_1 y_1 + (1 - n_1) y_2}$$

I take higher θ_1 as an indicator of higher “equality,” since it represents the income share of the majority. “Equality” is in quotes because theoretically the income share of the majority could increase because group 2 is poorer than group 1 and loses ground, which implies higher not lower inequality. However, if group 2 is richer, then an increased income share for the majority goes together with greater equality. I take as the base case one in which the minority group is richer, and the ethnically distinct “masses” are poorer – this is the situation in many developing

economies. In any event, the share of the middle class (the majority, which will be implemented in the empirical work as the middle three quintiles of the income distribution) is what matters in both the theory and the empirical work. In practice, most of the variation of the share of the middle class comes from variation in the share of the top quintile, not variation in the bottom quintile.

The creation of human capital is assumed to be a public activity that can only be undertaken by the state (which mirrors the dominance of the state in education in the real world). The state devotes all of its tax revenue to human capital creation (E). Tax revenue comes from a flat tax on income, so

$$(4) E = \tau(n_1 y_1 + (1 - n_1) y_2) N$$

where N is total population, assumed to be fixed over time.

How does E translate into human capital accumulation in the two groups? We can think of different allocation rules. One would be to equate per capita human capital spending across groups, so group 1 would receive $n_1 E$ of the spending. This would lead to convergence between the groups, and so would eliminate inequality. In practice, however, we do not observe equating of per capita education or other forms of human capital spending across distinct income classes or ethnic groups, and we certainly observe a lot of inequality across groups. A more reasonable assumption would be that each group gets a share of education spending equal to the share of tax revenue it bears, so group 1 would get $\Theta_1 E$ of the spending. This implies the following per capita human capital accumulation for group 1:

$$(5) \dot{h}_1 = \frac{\Theta_1 E_1}{N_1} = \frac{\Theta_1 e}{n_1}$$

where e is average per capita education spending, i.e. $e = \tau(n_1 y_1 + (1 - n_1) y_2)$.

Since group 1 is in the majority, the median voter belongs to group 1. This suggests that only group 1 will decide the tax rate τ . The median voter internalizes the within-group ethnic

capital externality, so he or she solves the following infinite horizon problem for the control variable τ , assuming log utility:

$$(6) \text{ Max } \int_0^{\infty} e^{-\rho t} \ln c_1$$

where $c_1 = (1-\tau)Ah_1$ and the evolution of the state variable h_1 is given by (5).

The first order condition for this problem implies:

$$(7) \frac{\dot{c}_1}{c_1} = A[1 - \tau(1 - \Theta_1)] - \rho$$

Substituting for e in equation (5), we get the following growth rate of human capital:

$$(8) \frac{\dot{h}_1}{h_1} = \tau A$$

The tax rate in the balanced growth steady state where (7)=(8) is:

$$(9) \tau = \frac{A - \rho}{A(2 - \Theta)}$$

Substituting (9) into (7), we get the growth rate:

$$(10) \frac{\dot{c}_1}{c_1} = \frac{A - \rho}{2 - \Theta_1}$$

The minority group, group 2, does not optimize because they have no power over the control variable τ . The growth of their human capital will be given by:

$$(11) \dot{h}_2 = \frac{(1 - \Theta_1)e}{1 - n_1}$$

Substituting for e , this simplifies to the same growth rate of human capital for group 2 as for group 1:

$$(12) \frac{\dot{h}_2}{h_2} = \tau A$$

which means that in the steady state, the growth rate of consumption for group 2 will be the same as that for group 1:

$$(13) \quad \frac{\dot{c}_2}{c_2} = \frac{A - \rho}{2 - \Theta_1}$$

There are several things to note about the steady state solution. First, note that if there is only one homogeneous group in society ($\Theta_1=1$), then the optimal growth rate simplifies to the familiar expression $A-\rho$ (remember the intertemporal elasticity of substitution is set equal to one, an assumption that could easily be relaxed).

The growth rate is lower, the lower is the share of the majority in income. The fraction $1-\Theta_1$ is the fraction of leakage of human capital investment to group 2, which lowers the incentive of group 1 to accumulate human capital because group 1 gets no spillover from human capital of group 2.

Since the two groups grow at the same rate in steady state, the ratio of h_1 to h_2 is fixed by initial conditions. The lower is the initial and permanent ratio h_1 to h_2 , the lower is the share of the majority in income, the less is investment in human capital, and the lower is growth. This suggests that societies composed of a rich elite and an impoverished majority do not have favorable conditions for human capital investment and growth. The empirical prediction is that a lower share of income for the middle class is associated with lower growth and lower human capital accumulation.

For a given ratio of h_1 to h_2 , the lower is n_1 (although remaining above .5), the lower will be the share of the majority in income. We can think of n_1 as a measure of ethnic diversity. An ethnically homogeneous society will have $n_1=1$. Having specified only two groups, the maximum ethnic heterogeneity will be $n_1=.5$. The more ethnically heterogeneous the society, the lower the growth rate and human capital accumulation.

We could easily extend the analysis to more ethnic groups than 2, which would only worsen the effect of ethnic heterogeneity on the growth rate. One possible situation is of multiple

groups where the largest ethnic group decides the tax rate under a plurality system of voting.¹⁵ With the largest group accounting for less than .5 of the population, there is even greater “leakage” of human capital investment outside one’s own ethnic group and thus lower incentive to accumulate human capital. Again, the prediction is that more ethnic heterogeneity leads to lower growth and lower human capital accumulation.

B. Discussion

So far, we have been assuming that democratic voting determines τ . However, the results would go through with one group holding power by non-democratic means. The group holding power would still optimize with respect to its own human capital through optimizing τ , and thus would still face a lower incentive to accumulate human capital than if it represented all of society. Going further afield than the model, we might think that one group would in fact have an incentive to suppress democracy. Democratic voting would result in a higher τ than the oligarchic elite would choose on its own, because the elite does not value the human capital accumulation for other groups. A large and homogeneous middle class would not have anything to lose in a democracy and so would be more likely to grant universal suffrage.¹⁶ We will test this prediction in the empirical section.

So far, I have been referring to the publicly provided good as human capital, broadly construed to include education and health outcomes. The same results would obviously go through if we were discussing publicly provided infrastructure capital, so I will also test various infrastructure measures in the empirical section.

I will also test for the effect of the middle class consensus on general “modernization” of the society, as measured by the share of agriculture and urbanization. A traditional landowning elite may resist “modernization” because it threatens their hold on power.

I have treated the share of the middle class as affecting the outcome through its impact on “leakage” of investment outside one’s own group. I have defined the groups in ethnic terms.

However, the same results would go through if groups were defined by class rather than ethnic polarization, with group 1 as the “masses” and group 2 as the upper class. Moreover, high income inequality makes it more likely there will be class polarization between the groups such that each group will only benefit from human capital accumulated within that group. Great income inequality means that the two classes will have very different education and tastes, which makes it more likely they will engage in assortative matching with others of similar human capital. There will likely be endogenous decentralized segregation of rich and poor, such as through neighborhood segregation.¹⁷ In societies with a middle class consensus, on the other hand, class lines will be more fluid and there will not be such a perceived “leakage” of human capital investment outside one’s own group.

Thus, a low share for the middle class has effects on human capital and growth through two channels. First, it means there will be more “leakage” of human capital outside the majority, thus lowering the incentive for public spending on human capital accumulation. Second, it increases the likelihood that there will be cleavages between groups in the first place.

Although it does not directly flow from the model, we should also expect that consensual societies will favor growth of future production over redistribution of existing resources. They have a stronger incentive to invest in the future because they receive more of the fruits of that investment, with less “leakage” outside the group. Societies that are divided by class or ethnicity on the other hand, will not have as strong an incentive to invest in the future and so rent-seeking from existing resources will be relatively more attractive, even if it harms future growth. Hence, we should expect to see more redistributive choices of economic policies in polarized societies. We also may see more political instability as polarized groups fight over distribution of the spoils of power.

III. Empirical testing

In this section, I test some of the propositions advanced by the previous literature and by the model in this paper. The previous literature and this model suggests that inequality and ethnic

diversity are fundamental determinants of incentives to invest in the future, and so would determine many of the right-hand side variables in growth or income regressions. I will run parsimonious regressions of growth, income, human capital accumulation, and infrastructure on ethnic diversity and inequality. Given the auxiliary predictions for democracy and political instability, I will also relate those variables to the middle class consensus. Table 1 reports summary statistics on the variables in the paper. The data on inequality are the broadest possible sample from Deininger and Squire 1996. The ethnolinguistic fractionalization, which varies from 0 to 100, is from Easterly and Levine 1997.

Table 1: Statistics on variables used in this paper

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
Cabinet changes per year 60-88	0.39	0.36	1.07	0.00	0.22	168
Civil liberty, 1998	3.57	4.00	7.00	1.00	1.79	190
Constitutional changes per year 60-88	0.10	0.10	0.36	0.00	0.09	168
Dummy for non-oil commodity exporting	0.22	0.00	1.00	0.00	0.42	175
Dummy for oil exporting	0.09	0.00	1.00	0.00	0.28	175
Dummy for Tropical Location	0.50	0.00	1.00	0.00	0.50	229
Ethnic diversity, 1960	41.47	42.00	93.00	0.00	29.79	113
Faults per phone line	67.60	47.50	350.00	2.00	74.23	62
GDP Per capita 60	2247	1316	9895	257	2186	124
GDP Per capita 90	5825	3780	22660	400	5719	152
Growth Per Capita 1950-92 (Summers-Heston), average of available data	0.02	0.02	0.07	-0.08	0.02	146
Immunization DPT (%)	74.76	82.00	100.00	13.00	21.66	145
Immunization Polio (%)	75.68	83.00	100.00	13.00	21.85	145
Infant mortality 1990	86.45	89.00	194.00	3.00	56.36	141
Infants, low birth weight, 1990	11.95	10.00	50.00	4.00	6.53	111
Life expectancy 1997	66.37	69.80	79.99	37.51	10.23	194
Log black market premium 1997	7.73	0.04	999.00	-0.89	83.90	142
Log inflation 1960-98	0.15	0.08	1.42	0.03	0.21	136
M2 to GDP 1997	43.90	35.12	206.25	6.09	32.63	140
Middle class share (share of quintiles 2-4), average 60-96	46.71	48.04	57.70	30.00	7.11	103
Percent of population with access to clean water 1990	68.32	72.00	100.00	12.00	24.34	104
Percent of population with access to sanitation 1990	56.75	56.00	100.00	1.00	33.35	120
Percent of roads paved 1990	45.55	42.00	100.00	0.00	31.61	191
Political rights, 1998	3.47	3.00	7.00	1.00	2.24	190
PPP Trade Share in GDP 1997	35.69	25.72	290.71	3.37	37.89	133
Primary enrollment, 1990	0.86	1.00	1.00	0.15	0.22	120
Real exchange rate overvaluation (100=PPP) 1960-98	117.1	107.45	381.94	50.47	41.55	104
Revolutions and coups per year, 60-88	0.19	0.07	1.00	0.00	0.24	168
Secondary enrollment, 1990	0.49	0.44	1.00	0.03	0.31	118
Share of agriculture in GDP, 1990	20.4	17.5	65.5	0.3	15.8	162
Share of pop. in minorities at risk, 1990	0.28	0.17	1.00	0.01	0.27	111
Share of time at civil war 60-89	0.07	0.00	0.80	0.00	0.15	135
Telephones per capita, 1994	82.36	63.03	293.83	8.27	67.75	189
Tertiary enrollment, 1990	0.12	0.07	0.58	0.00	0.12	123
Urbanization ratio, 1990	51.0	49.7	100	5.2	24.0	197

For sources see Easterly and Yu 1999.

A. Tropical endowments, commodity exporting, and inequality

I first test the hypothesis of Engerman and Sokoloff 1997 that a tropical endowment leads to commodity production, and that commodity production is associated with higher inequality.

Their hypothesis has not been systematically tested with cross-country data as far as I am aware.¹⁸

Establishing these facts will allow the use of instruments for inequality. I use the World Bank

World Development Report classification of countries as non-oil commodity exporters. For

tropical location, I construct a dummy that takes on the value one if the country's mean latitude is

less than 23.5 degrees and 0 otherwise. Table 2 shows a probit equation for commodity

production on tropical location:

Table 2: Dependent Variable: COMMODITY EXPORTING DUMMY

Method: ML - Binary Probit

Included observations: 175

Convergence achieved after 4 iterations

Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-1.471424	0.205586	-7.157227	0.0000
TROPICS	1.130729	0.245913	4.598093	0.0000
Mean dependent var	0.222857	S.D. dependent var		0.417357
S.E. of regression	0.391207	Akaike info criterion		0.946658
Sum squared resid	26.47647	Schwarz criterion		0.982827
Log likelihood	-80.83262	Hannan-Quinn criter.		0.961330
Restr. log likelihood	-92.83758	Avg. log likelihood		-0.461901
LR statistic (1 df)	24.00992	McFadden R-squared		0.129311
Probability(LR stat)	9.58E-07			
Obs with Dep=0	136	Total obs		175
Obs with Dep=1	39			

Not too surprisingly, commodity exporting is strongly associated with the tropics. Table 3

classifies countries by whether they are commodity exporters and by whether they are tropical:

Table 3: Commodity Exporting and Tropical Location

<i># Countries</i>	Tropical	Non-tropical	Total
Commodity exporter	33	6	39
<u>Non-commodity exporter</u>	<u>58</u>	<u>78</u>	<u>136</u>
Total	91	84	175
<i>Percent of row totals</i>			
Commodity exporter	36%	7%	
Non-commodity exporter	64%	93%	
<i>Percent of column totals</i>			
Commodity exporter	85%	15%	
Non-commodity exporter	43%	57%	

The vast majority (85%) of commodity exporting nations are in the tropics. Tropical nations are 5 times more likely to be commodity exporters than temperate nations.

The next step is to see whether being commodity exporting is associated with higher inequality, as hypothesized by Engerman and Sokoloff. Here is a simple regression of the share of the middle three income quintiles on the commodity exporting dummy (in light of the foregoing regression, TROPICS is an instrument for COMMOD) and a dummy for oil exporting nations:

Table 4: Dependent Variable: MIDDLE CLASS INCOME SHARE

Method: Two-Stage Least Squares

Included observations: 102

White Heteroskedasticity-Consistent Standard Errors & Covariance

Instrument list: C TROPICS DUMMY, OIL DUMMY

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	51.63167	1.058569	48.77496	0.0000
COMMODITY DUMMY	-19.62242	4.996424	-3.927293	0.0002
OIL DUMMY	-10.88073	3.315207	-3.282066	0.0014
S.E. of regression	9.308190	Mean dependent var		46.75934
F-statistic	9.590131	S.D. dependent var		7.121557
Prob(F-statistic)	0.000156	Sum squared resid		8577.598

Confirming the Engerman-Sokoloff hypothesis, commodity production (including oil production) is associated with a lower share of income of the middle quintiles. The effect of commodity exporting is enormous, equal to nearly 3 standard deviations of the middle income share. It explains two-thirds of the entire range of the variable, which only varies between 30 and 58 percent. Oil production also moves the middle income share by a sizeable amount, more than one standard deviation.

B. The middle class consensus and per capita income and growth

I now have suitable instruments for the middle income share to use in a regression of growth on the middle income share and the ethnic fractionalization index. Following a recent fashion in the empirical growth literature, I first use 1990 per capita income as a very long run measure of growth since some primordial time when incomes were roughly equal across countries. (Or this regression could be interpreted as representing a neoclassical model in which the rate of human capital accumulation has a level rather than growth effect on income.) I adopt a very parsimonious specification that features only the middle class share (suitably instrumented) and ethnic heterogeneity. We can think of this as a reduced form, where all the variables that

usually appear in growth regressions are endogenous outcomes of the middle class consensus (many of them will indeed be dependent variables below).

I estimate the system of the inequality equation and the income equation jointly using three stage least squares:

Estimation Method: Three-Stage Least Squares

Instruments: Ethnic Fractionalization, Oil Dummy, Tropics Dummy, Constant

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	50.8239	1.7441	29.14	0.000
C(2)	-18.7833	5.3571	-3.51	0.001
C(3)	-8.0868	3.6927	-2.19	0.030
C(4)	2.3079	1.4033	1.64	0.102
C(5)	0.1402	0.0292	4.80	0.000
C(6)	-0.0098	0.0035	-2.81	0.006

Equation: Middle Class Share =C(1)+C(2)*COMMODITY DUMMY +C(3)*OIL DUMMY

Observations: 83

Equation: LOG(GDP Per Capita 90)=C(4)+C(5)*Middle Class Share +C(6)*Ethnic Fractionalization

Observations: 81

Per capita income is strongly influenced by the middle class share and by ethnic fractionalization.

A one standard deviation increase in the middle class share (7 percentage points) is associated with an enormous movement of 1.2 standard deviations in per capita income (equivalent to an income increase by a factor of 3.4). The effect of ethnic diversity is not as strong but still important: a one standard deviation increase in ethnic diversity lowers income by one quarter of a standard deviation.¹⁹ Figure 1 shows the fall in log income as one moves from high to low terciles of the middle class share, as well as the fall in income from low to high terciles of ethnic diversity.

The theoretical model was an endogenous growth model, so it seems appropriate to do a minimalist growth regression, using only initial income, the middle class income share, and ethnic fractionalization. The exercise is once again how much can be explained by the middle class consensus hypothesis. Once again I use a system estimator:

Table 6: System estimation for Per Capita Growth as Dependent Variable				
Estimation Method: Three-Stage Least Squares				
Instruments: Ethnic Fractionalization, Oil Dummy, Tropics Dummy, Constant				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	51.0619	1.7443	29.27	0.000
C(2)	-19.1717	5.2902	-3.62	0.000
C(3)	-9.1976	3.7984	-2.42	0.017
C(4)	-0.0314	0.0238	-1.32	0.189
C(5)	0.0012	0.0005	2.51	0.013
C(6)	-0.0001	0.0001	-2.48	0.014
Equation: Middle Class Share $=C(1)+C(2)*COMMODITY\ DUMMY +C(3)*OIL\ DUMMY$				
Observations: 80				
Equation: Per Capita Growth (1950-92) $=C(4)+C(5)*Middle\ Class\ Share +C(6)*Ethnic\ Fractionalization$				
Observations: 80				

A one standard deviation increase in the middle class income share is associated with a growth increase of .42 standard deviations, equivalent to one additional percentage point of per capita growth. A movement from the minimum middle class income share to the maximum in the sample is associated with an enormous increase in growth -- 3.8 percentage points.

A one standard deviation increase in ethnic fractionalization is associated with a growth decrease of .21 standard deviations, equivalent to half of a percentage point of growth. A movement from the minimum ethnic fractionalization to the maximum is associated with a fall in growth of 1.5 percentage points.

Figure 2 shows the fall in the per capita growth rate as one goes from high to low middle class share, and from low to high ethnic diversity. The highest growth rate is with a high middle income share and low ethnic diversity; growth miracles Japan and Korea are in this group. The lowest growth is with a low middle income share and high ethnic diversity. Guatemala, Sierra

Leone, and Zambia are examples of countries that fall in the low middle class share, high ethnic diversity part of the sample.

How robust are these results to other exogenous factors that have been mentioned in the literature? Bloom and Sachs (1998) and Sachs and Warner (1997) argue that being landlocked is a geographic disadvantage for development. When I introduce a landlocked dummy as an exogenous variable into either the income or growth regressions, it is insignificant and the middle class share and ethnic fractionalization remain significant. These authors also argue that tropical location is a development disadvantage. I agree with this thesis, but provide a structural explanation for why it matters -- through the effect on inequality.

C. The middle class consensus and human and infrastructure capital accumulation

I now look directly at whether the middle class share and ethnic fractionalization are related to human capital accumulation and other public goods. Table 7 shows the results from system estimations -- of the exact same form as for income and growth -- for different dependent variables, showing only the coefficients for each dependent variable on the middle class share and ethnic fractionalization.

Starting first with the education variables, we see that the middle class share has a weak effect on primary enrollment, and a very strong effect on secondary and tertiary enrollment. Ethnic diversity does not have much of an effect on tertiary enrollment, but strongly lowers primary and secondary enrollment.

Figure 3 shows secondary enrollment in terciles of the middle class share and ethnic diversity. Secondary enrollment is 84 percent in the highest tercile of the middle class share and lowest tercile of ethnic diversity. It is only 28 percent in the lowest tercile of the middle class share and highest tercile of ethnic diversity.

On health, the middle income share strongly affects all the indicators: life expectancy, infant mortality, low birth weight of infants, percent of children immunized against

Table 7: Results of 3SLS regressions of human capital and infrastructure related variables on share of the middle class and ethnic diversity				
Dependent variable:	RHS variable	Coefficient	T-statistic	#observations
<i>Education:</i>				
Primary enrollment	Middle class share	0.0075	1.42	76
	Ethnic diversity	-0.0021	-3.05	
Secondary enrollment	Middle class share	0.0402	5.15	76
	Ethnic diversity	-0.0027	-2.91	
Tertiary enrollment	Middle class share	0.0170	4.51	79
	Ethnic diversity	-0.0005	-0.95	
<i>Health:</i>				
Life expectancy	Middle class share	1.0794	4.18	83
	Ethnic diversity	-0.1353	-4.56	
Infant mortality	Middle class share	-5.1633	-4.08	77
	Ethnic diversity	0.4551	2.69	
Infants, low birth weight	Middle class share	-0.3325	-2.55	72
	Ethnic diversity	0.0755	3.81	
Immunization DPT (%)	Middle class share	1.7796	3.04	80
	Ethnic diversity	-0.1048	-1.55	
Immunization Polio (%)	Middle class share	1.5629	2.78	80
	Ethnic diversity	-0.1518	-2.32	
<i>Infrastructure:</i>				
Percent of roads paved	Middle class share	4.2969	5.52	81
	Ethnic diversity	-0.1099	-1.16	
Access to clean water (%)	Middle class share	-0.4382	-0.25	51
	Ethnic diversity	-0.3446	-3.62	
Access to sanitation (%)	Middle class share	2.5587	2.54	77
	Ethnic diversity	-0.2989	-2.50	
Log(telephones per capita)	Middle class share	0.1206	4.81	82
	Ethnic diversity	-0.0078	-2.60	
Faults per phone line	Middle class share	0.6374	0.26	35
	Ethnic diversity	1.3833	3.65	
<i>Notes: each equation contains a constant (not shown) and is part of a system with one other equation, which gives the middle class share as a function of a commodity-exporting dummy and oil-exporting dummy (both of which are generally significant and similar to the results in Tables 5 and 6). Instruments for the whole system are the oil dummy, tropical location, and ethnic diversity.</i>				

DPT, and percent of children immunized against polio. Ethnic diversity also significantly affects virtually all the indicators, with the expected sign: higher ethnic diversity leads to worse health outcomes and lower levels of publicly provided health services.²⁰

Figure 4 shows life expectancy graphed against terciles of the share of the middle class and ethnic diversity. Societies with a middle class consensus – high share of middle class and low ethnic diversity – have life expectancy 21 years greater than societies polarized by a low share of the middle class and high ethnic diversity.

On infrastructure, the results are less uniform. The middle class income share does not affect access to clean water or faults per telephone line, but increases percent of roads paved, access to sanitation, and telephones. Ethnic diversity does not affect percent of roads paved, but it lowers access to clean water, access to sanitation, telephones, and increases telephone faults per line.

Figure 5 shows access to sanitation as a function of the middle class share and ethnic diversity. Societies with a middle class consensus have access to sanitation that is 47 percentage points higher than polarized societies.

There is some variation as to which kind of polarization – by class or by ethnic group – matters for the different indicators. The degree of leakage of within-group investment to an outside group may differ for different types of indicators and for class versus ethnic distinctions. Overall, however, these results are supportive of the hypothesis that a middle class consensus -- measured by share of the middle class and ethnic homogeneity -- is associated with higher levels of human and infrastructure capital accumulation.

D. Economic policies and the middle class consensus

The existence of a middle class consensus also affects the choice of economic policies. Societies with a middle class consensus will choose policies to promote growth, while societies polarized by class and ethnic group will opt for redistributive policies. The following table shows the effect of the middle class share and ethnic diversity on four key policy indicators – the black market premium, real overvaluation, financial depth, and trade openness.

Table 8: Results of 3SLS regressions of policy-related variables on share of the middle class and ethnic diversity				
Dependent variable:	RHS variable	Coefficient	T-statistic	#observations
Log black market premium	Middle class share	-0.0466	-1.23	71
	Ethnic diversity	0.0126	2.49	
Log overvaluation index	Middle class share	-3.40	-2.53	79
	Ethnic diversity	-0.21	-1.26	
Log CPI inflation	Middle class share	-0.016	-2.42	79
	Ethnic diversity	-0.001	-1.33	
Financial depth	Middle class share	3.7164	3.27	74
	Ethnic diversity	-0.0942	-0.73	
PPP Trade share of GDP	Middle class share	-0.7032	-0.44	75
	Ethnic diversity	-0.4821	-2.32	

The policy indicators respond to different measures of group polarization. Financial depth (reflecting the absence of a redistributive policy like interest rate controls that yield negative real interest rates) is positively related to the middle class share. The overvaluation index (the deviation from Purchasing Power Parity estimated by Dollar 1992, extended for the whole sample 60-98) and consumer price inflation are negatively related to middle class share. We can interpret this finding as inflation and an overvalued exchange rate being used as a redistributive device in an unequal society. The black market premium is positively related to the degree of ethnic diversity.²¹ The trade share in GDP is negatively related to ethnic diversity. Again, we can see trade distortions and the black market premium being used as redistributive devices in an ethnically-polarized society.

E. Democracy, Political Instability, and Middle Class Consensus

As mentioned in the discussion section, we might expect polarized societies to be less democratic-- the most powerful group may attempt to suppress democracy so as not to vote for "excessive" (i.e. outside the group) human capital accumulation. We will use the well-known Freedom House measures of political rights and civil liberties to test this prediction.

We might expect that societies that opt for redistributive policies would also have more unstable governments, as different factions fight for the spoils of power. This could show up most overtly as civil war, or less violently as revolutions, coups, constitutional changes, and cabinet changes.

Struggles over redistribution may also put minority groups at risk of economic or political discrimination, or even violent oppression. This type of political instability is captured well by the “Minorities at Risk” measure of Gurr (1993), which measures the percent of the population belonging to minorities at risk.

Table 9 shows the results of system estimation with democracy and political instability variables as the dependent variable in the second equation (the first equation as always determines the middle class share endogenously as a function of commodity-exporting and oil-exporting, instrumenting for commodity exporting with tropical location). The measure of suppression of political rights increases with ethnic diversity and decreases with the share of the middle class. Suppression of civil liberties decreases with middle class share, but is not related to ethnic diversity.

As far as political instability, one or the other polarization measure is statistically significant for civil war, revolutions and coups, constitutional changes, and minorities at risk, while cabinet changes do not appear to be related to these polarization measures. More ethnic diversity is associated with more time in civil war, greater share of the population belonging to minorities at risk, and more constitutional changes, while a greater share for the middle class is associated with fewer revolutions and coups and fewer constitutional changes.²²

Table 9: Results of 3SLS regressions of democracy and political instability variables on share of the middle class and ethnic diversity				
Dependent variable:	RHS variable	Coefficient	T-statistic	#observations
Political rights (1-7 where 1 is most free)	Middle class share	-0.1577	-2.77	82
	Ethnic diversity	0.0146	2.02	
Civil liberties (1-7 where 1 is most free)	Middle class share	-0.1359	-3.14	82
	Ethnic diversity	0.0069	1.22	
Percent of period in civil war	Middle class share	-0.0072	-1.40	76
	Ethnic diversity	0.0014	2.02	
Revolutions and coups per year	Middle class share	-0.0153	-2.01	82
	Ethnic diversity	0.0009	0.96	
Constitutional changes per year	Middle class share	-0.0065	-3.00	82
	Ethnic diversity	0.0007	2.51	
Cabinet changes per year	Middle class share	0.0115	1.57	82
	Ethnic diversity	0.0001	0.08	
Minorities at Risk (% of population)	Middle class share	-0.009	-1.02	60
	Ethnic diversity	0.003	2.50	
Log (GDPPC90) (Political rights=1)	Middle class share	0.038	6.72	27
	Ethnic diversity	0.003	1.04	

Although democracy is less likely in a polarized society, Collier 1999 argues that the effects of polarization would be mitigated if a society does somehow attain democracy. This supposition is tested in the last 2 lines of Table 9, where we redo the regression of Table 5 for the sample of countries with full democracy (political rights=1). Consistent with Collier's results, we find that the effect of ethnic diversity on income disappears, while the middle class share remains significant. The continued significance of inequality under democracy is also consistent with the model and results of Persson and Tabellini 1994.

Why does the existence of democratic rights eliminate the effect of ethnic diversity on income? It may be that petitioning for redress of grievances in a democracy (e.g. the civil rights movement in the US) limits the ability of the ethnic majority to confine human capital

accumulation to its own group (e.g. through segregated and unequal schools). Thus, there is a ray of hope that ethnic diversity does not doom a society to lower income, since if strong leaders succeed in inaugurating democracy the adverse effects of ethnic fragmentation will disappear.

We cannot be too rigorous about exactly what type of “democracy” mitigates the ethnic diversity effect. Democracy is highly correlated with civil liberties and institutional quality, and we get similar results if we stratify the sample by those variables. Easterly 2000 finds that better institutions – rule of law, government enforcement of contracts, quality of bureaucracy, and freedom from expropriation -- mitigate the temptation identified by Easterly and Levine 1997 to engage in redistributive policies when there is high ethnic heterogeneity. Also in Easterly 2000, the institutions have an interaction effect with ethnic diversity in the growth regression such that the Easterly-Levine 1997 negative effect of ethnic diversity on growth disappears with maximum quality institutions.

F. “Modernization” indicators and the middle class consensus

We can also examine the effect of the middle class consensus on other indicators of a society’s development or “modernization.” More developed societies move away from agriculture towards industry and services (see Kongsamut, Rebelo, and Xie 1997 for a recent treatment). In Table 10, I use the share of agriculture in GDP as the dependent variable in the second equation of the 3SLS system. I find that societies with a larger middle class and more ethnolinguistic homogeneity have smaller agriculture shares.

Another indicator of “modernization” is the share of the population that lives in cities. In Table 10, I show the coefficients of the urbanization ratio regressed in the 3SLS system on the middle class share and ethnolinguistic heterogeneity. A larger and more homogenous middle class is associated with more urbanization. The middle class consensus is associated with these two well-known indicators of greater societal modernization.

Table 10: Results of 3SLS regressions of “modernization” variables on share of the middle class and ethnic diversity

Dependent variable:	RHS variable	Coefficient	T-statistic	#observations
Share of agriculture in GDP	Middle class share	-1.0740	-2.75	78
	Ethnic diversity	0.1680	3.46	
Urbanization ratio	Middle class share	1.8197	2.71	83
	Ethnic diversity	-0.2807	-3.28	

IV. Conclusions

Countries with a middle class consensus are fortunate societies. They have a higher level of income and growth. We can see why relatively homogenous middle-class societies have more income and growth, because they have more human capital and infrastructure accumulation, they have better national economic policies, more democracy, less political instability, more “modern” sectoral structure, and more urbanization.

Readers of previous papers on difficulties created by ethnic heterogeneity often ask what policy implications follow. Surely we do not want to give intellectual comfort to those who engage in “ethnic cleansing.” However, the result on the poor development outcomes associated with ethnic heterogeneity only says that, on average, politicians exploit ethnic divisions to the detriment of growth. It remains a choice for individual politicians whether they seek to divide and conquer, or to promote interethnic consensus. The result on the disappearance of the ethnic diversity effect in democracies also suggests that democratic reforms can promote interethnic reconciliation. Easterly 2000 also suggests that good institutions eliminate the adverse effects of ethnic conflict, although again good institutions are less likely a priori with high ethnic diversity.

Although Engermann and Sokoloff’s examination of long run development in North and South America inspired it, this paper has concentrated on recent growth experience. Suppose we were willing to stretch the analysis to the very long run, as recent papers like Hansen and Prescott 1998, Jones 1999, and Jovanovic 2000 have done. It is entertaining to engage in such speculations with the middle class consensus hypothesis of this paper, but such big-think history should be not be taken too seriously! We could speculatively blame the lack of middle class consensus for the

failure of societies like ancient Egypt, ancient Rome, the Mughal empire in India, and medieval China to industrialize despite promising beginnings. The Egyptians were capable of formidable engineering projects like the Pyramids, but it was all for the sake of the elite (just like the diversion of state revenues to “monuments” for the elite in many modern economies that lack a middle class consensus—e.g. the largest cathedral in the world in Côte d’Ivoire, built in the long-time president’s hometown Yamassoukro). Jovanovic 2000 notes that the Romans had the steam engine, but used it only to open and close the doors of a temple. India could produce high quality steel, but it was mainly used for swords. The Chinese had invented gunpowder, the wheelbarrow, printing, paper, the compass, and long-distance ocean voyages by the time of the Ming Dynasty (1368-1644), and yet did not industrialize.²³ All these societies had a very unequal distribution of income between lords and peasants, and were ethnically heterogeneous. They were authoritarian and had little human capital accumulation outside the elite, who were often ethnically distinct from the majority. More generally, the industrial revolution began as social revolutions abolished slavery, feudalism, and rigid class systems, creating a middle class for the first time in world history. Regions in which slavery or feudalism lingered longer were slower to industrialize.

The results in this paper are consistent with a theoretical model in which polarized societies will accumulate less human and infrastructure capital because of the “leakage” of investment outside one’s own class or ethnic group. It is also consistent with the idea that polarized societies will war over distribution, while consensual societies will opt for growth. I relate the degree of middle class consensus to tropical endowments which led to commodity-exporting (as in the Engermann-Sokoloff hypothesis) and to ethnolinguistic fragmentation. Rich societies are not rich because of superior culture, as Landes 1998 would argue, but because of accidental geographic and demographic make-up.

Figure 1: Per capita income as function of middle income share and ethnic diversity

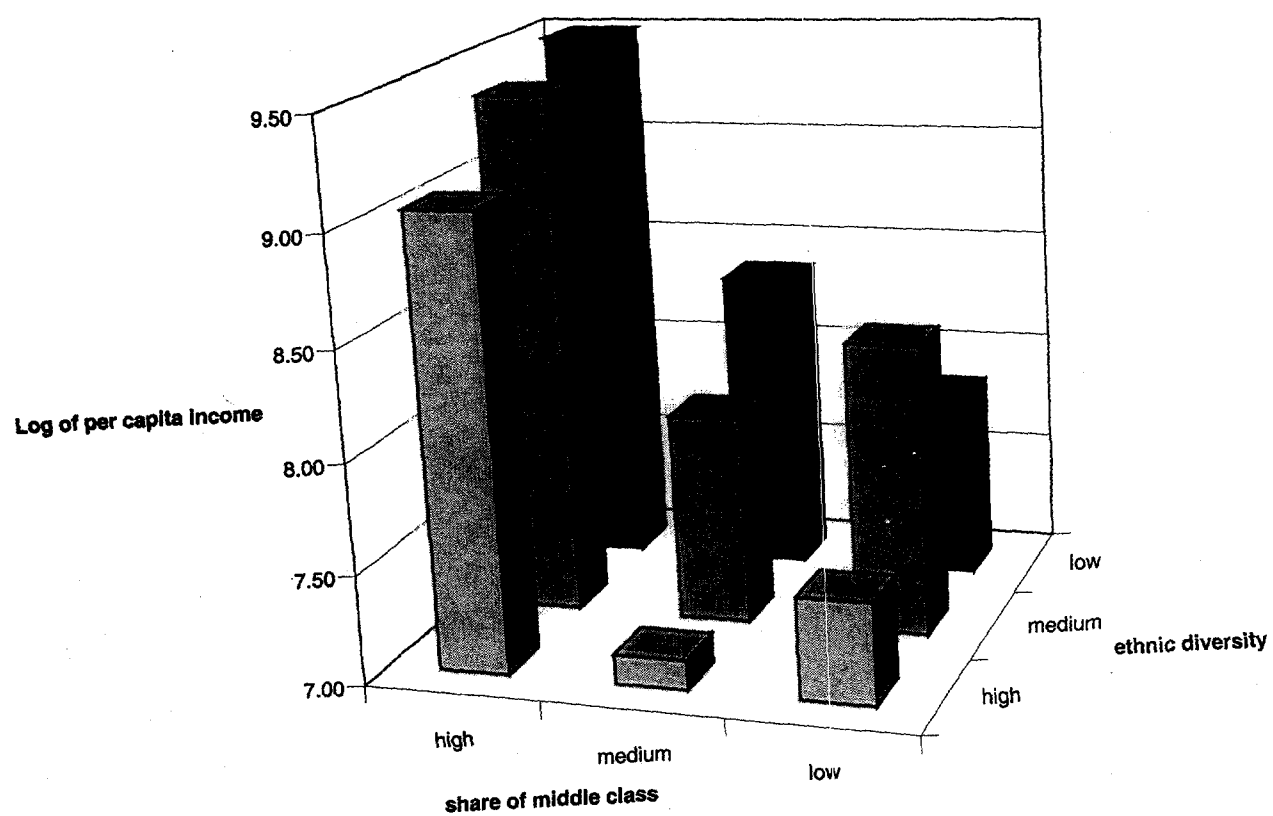


Figure 2: Growth as function of middle income share and ethnic diversity

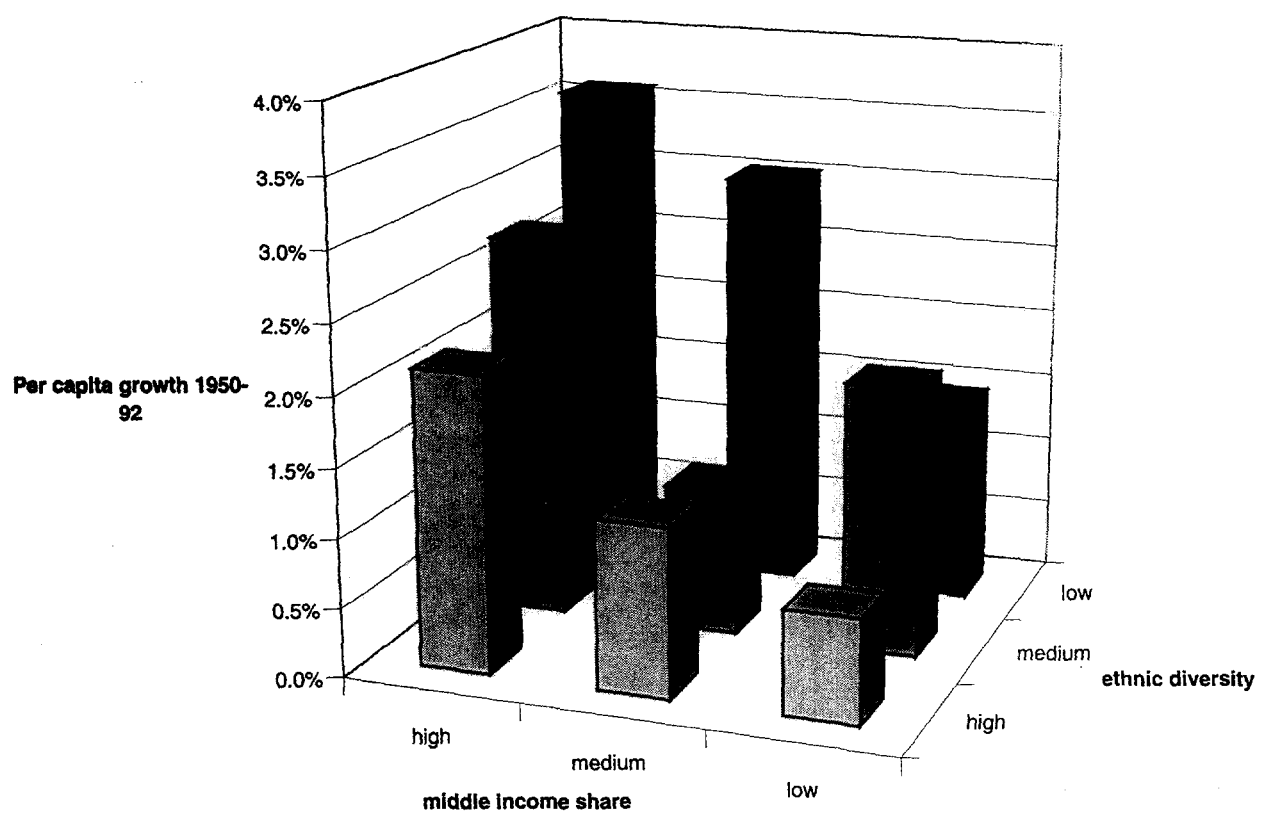


Figure 3: Secondary enrollment as a function of middle class share and ethnic diversity

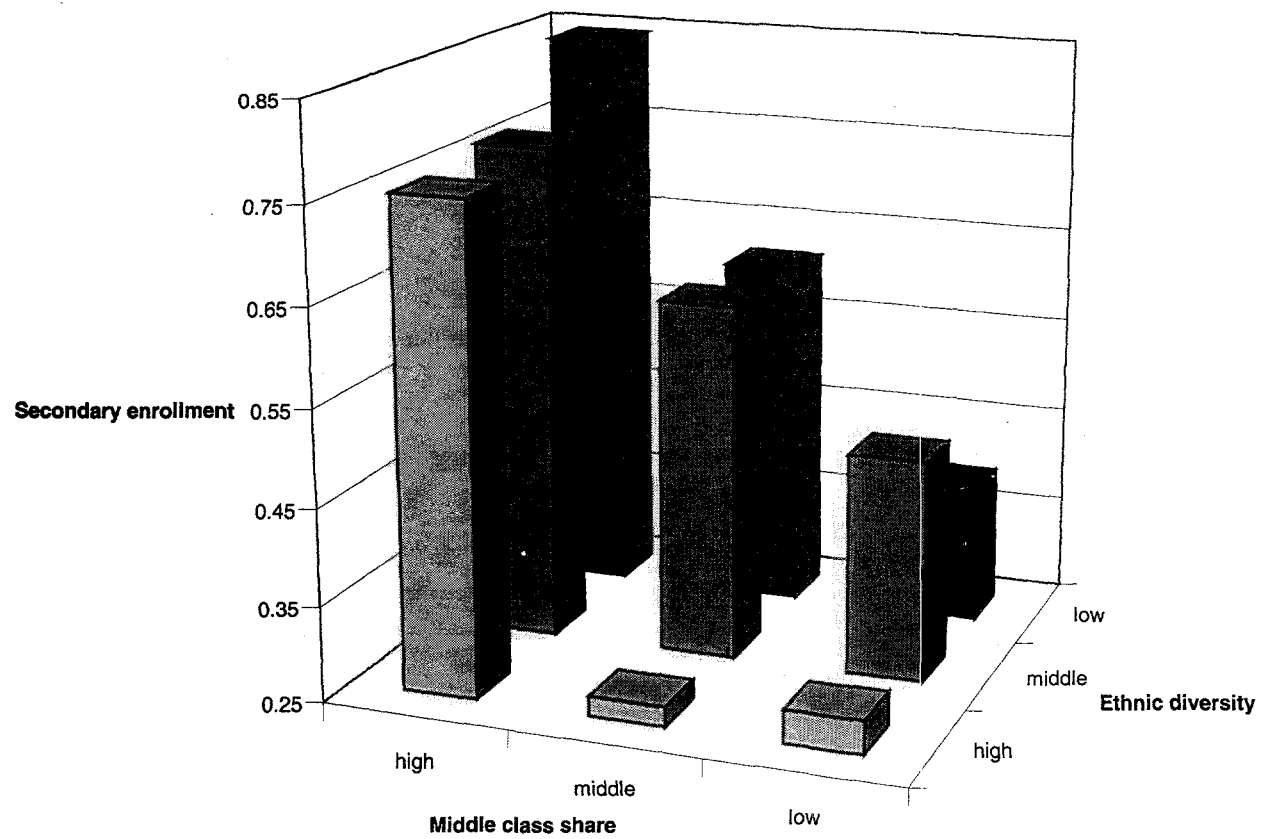


Figure 4: Life expectancy against share of middle class and ethnic diversity

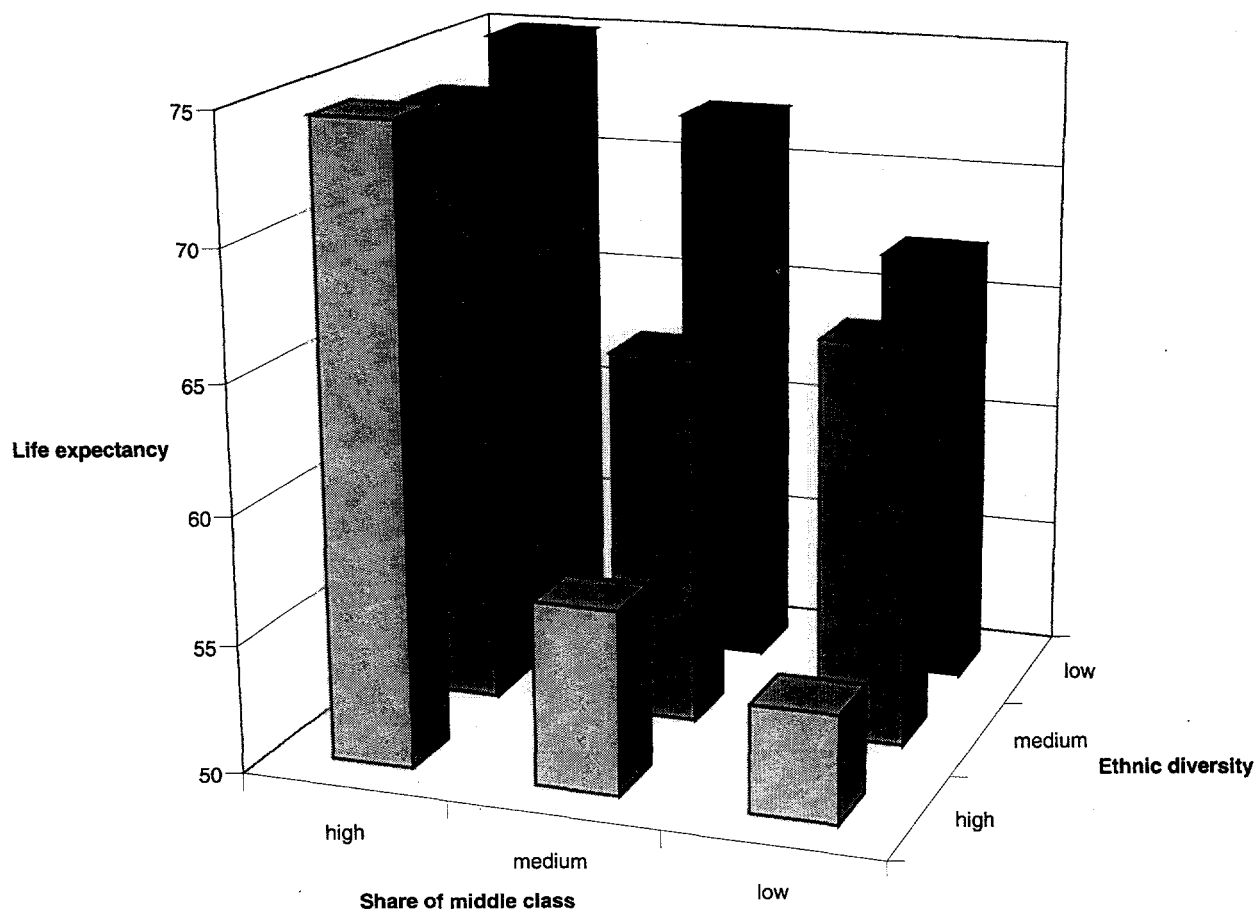
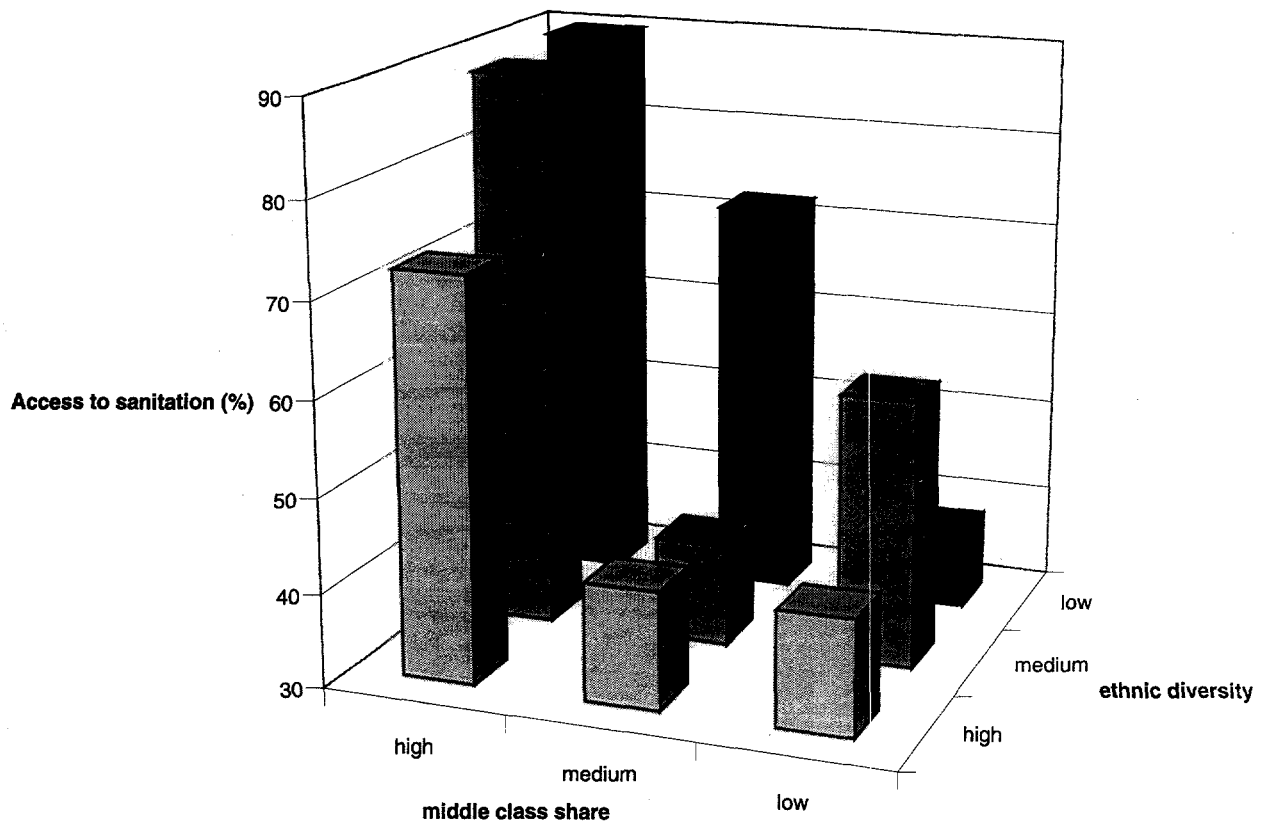


Figure 5: Access to sanitation against terciles of middle class share and ethnic diversity



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Endnotes

- ¹ Views expressed here are not necessarily of the views of the World Bank or its member governments. I am grateful for comments by Thorsten Beck, Stan Engermann, Karla Hoff, Aart Kraay, Ross Levine, Branko Milanovic, Guy Pfeffermann, Maurice Schiff, and Ken Sokoloff and from participants in seminars at Georgetown University and at the Inequality Workshop at the World Bank.
- ² I am indebted for this quote to Miguel 1999
- ³ Another author who emphasizes the importance of factor endowments is Lal 1998.
- ⁴ p. 30, Adelman and Morris 1967.
- ⁵ See also Grabowski 1991 about modern "feudalism" in Latin America.
- ⁶ p. 246-247, Benjamin 1996.
- ⁷ P. 223, 249, 242 Benjamin 1996
- ⁸ A recent paper by Barro 1999 disputes the effect of inequality on growth, and argues that it only holds for the poorest countries.
- ⁹ De Toqueville obviously had a blind spot regarding African-American slaves and Native Americans.
- ¹⁰ p. 41, Adelman and Morris 1967.
- ¹¹ This analysis by social scientists represents a long tradition. See e.g. Greenberg (1980) who notes the "continuing reality of racial and ethnic domination." (p.5)
- ¹² Psacharopoulos and Patrinos 1994, p. 6
- ¹³ V.V. Chari suggested this point to me.
- ¹⁴ Data from <http://www.census.gov/population/socdemo/race/interractabl.txt>. Share of whites in population from US Statistical Abstract 1995.
- ¹⁵ This is exactly the situation in a country like Kenya, where President Moi (leading a coalition of small ethnic groups) won the last election with considerably less than 50% of the vote.
- ¹⁶ This may be related to the famous thesis of Barrington Moore (1966) that (to simplify a little) when the commercial bourgeoisie (read middle class for our purposes) is strong, democracy emerges, whereas when landowners are dominant, dictatorship emerges. An alternative hypothesis for the motivation of extending the franchise is that the rich elite fears revolution (Acemoglu and Robinson 1998). Bourguignon and Verdier 1998 also have a theoretical model that predicts that inequality will hamper both democracy and human capital accumulation; in their model, the oligarchy resists mass education because it will increase political participation by the masses, and the oligarchy resists democracy because the masses will vote for redistribution. Gradstein and Justman 1995 have voting determined by a minimum level of income, hence the franchise expands as income grows.
- ¹⁷ Benabou 1996, 1993 has a story of persistent inequality because of self-segregation of high skilled people away from low-skilled people (through neighborhood segregation and locally financed public schools, for example). See also Durlauf 1996.
- ¹⁸ After completing the current draft in November 1999, I became aware of the 1998-99 report of the InterAmerican Development (1999), which graphically shows correlations between commodity exports and income inequality and between latitude and income inequality. The advantage of my approach compared to theirs is that I make the endogenous variable (commodity exporting) respond to the exogenous variable (tropical location).
- ¹⁹ Easterly and Levine 1997 also found an effect of ethnic diversity, measured the same way, on income.
- ²⁰ Filmer and Pritchett 1997 also found that higher ethnic diversity increases infant mortality.
- ²¹ Easterly and Levine 1997 also found an effect of ethnic diversity on the black market premium.
- ²² Annett 1999 also finds higher political instability with more ethnic diversity. Collier and Hoeffler 1998 also find a relationship between ethnic diversity and civil war but find it to be of an inverted U-shape – I use here a different measure of civil war (Sivard 1993) than theirs.
- ²³ See Jones 1988 for a description of growth in ancient empires. He notes that Sung China did apparently have both technical progress and rising per capita income from the tenth to the thirteenth centuries, but then stagnation followed in Ming China and its successor to the 19th century (see also Young 1993).

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5/31